Amendments to the Drawings

Please withdraw / cancel Drawing Fig. 9

Remarks / Arguments

1. The claims of record have all been rewritten and replaced with new claims 21 thru 38 in order to define the invention more particularly over the cited references. These claims are all submitted to be patentable over the cited reference because, (1) they recite novel structure and thus distinguish physically over every reference (Sec. 102), and (2) the physical distinctions effect new and unexpected results, thereby indicating that the physical distinctions are unobvious under Sec. 103.

The Claims All Distinguish Over The References Under Sec. 102

2. The independent claims, and hence all claims, distinguish over the references under Sec. 102 because it recites a pressure activated self opening closure seal for a flexible container constructed from two layers of sheet material that are permanently bonded together. A first layer of easily broken frangible sheet material is bonded to a second layer of strengthening material. The strengthening layer of material contains a cut out void configuration that creates a weakness in the seal by leaving only the frangible layer in the area of the void. When pressure is applied to the seal by inverting the container and squeezing, the weaker area of the cut out void configuration forms a breaking pattern that causes the seal to break open and tear only in the configuration of the breaking pattern.

3. The cited and relied upon Markva patent (U. S. Patent No. 4,938,390) discloses in the specification and shows in drawing Fig. 5 and 5a, a seal comprised of a first partial layer that is bonded to the container rim with a fixed adhesive. The first layer covers over approximately half of the pour spout opening. The remainder of the pour spout opening is covered over by a second layer that is bonded to a portion of the first layer and a portion of the rim with a releasable adhesive that allows the second layer

to delaminate from the first layer when sufficient pressure is applied by squeezing the inverted container. The second layer is kept from completely detaching from the container rim by bonding a portion of the second layer to the rim with a fixed adhesive.

However, is no provision given for the probability that using a releasable tack adhesive with a bond strength that is weak enough to allow the second layer to delaminate from the first layer when the inverted container is squeezed, would also allow the second layer to delaminate from the first layer at the tacked portion when the closure cap is rotated. The amount of pressure against the seal when the closure cap is torqued on or off is many times greater than the small amount of pressure required to allow the second layer to delaminate from the first layer when the inverted container is squeezed. Rotation of the closure cap while it is compressed against the seal during installation or removal produces a frictional shearing force that could force the releasable portion of the second layer to lose its bond and rotate with the cap which would cause the second layer to pleat against the fixed portion resulting in leakage and premature opening of the seal. Additionally a tack type releasable adhesive with low adhesion characteristics could also be vulnerable to degradation from the volatile organic compounds present in many petroleum based products that could negatively affect the second layers ability to remain bonded to the first layer when exposed to them in the container.

It is not clearly under stood by this applicant how the cited and relied upon embodiment of Markva's seal as shown in drawing Fig. 5 and 5a teaches all the features of the claimed invention except that the breaking pattern includes different shape.

The layers of my claimed seal invention are bonded together permanently. They do not delaminate as do the layers 24 and 25 of Markva. If a permanent adhesive were substituted for the tack adhesive that Markva uses to bond layer 24 to layer 25, the resulting seal arrangement would not break open for several reasons when the container was inverted and squeezed. 1. If a permanent adhesive were used it would bond the perforations of the tear lines 28 and 29 back together and prevent the seal from tearing open only along

the tear lines. 2. If a permanent adhesive were used, layer 24 could not delaminate from the rim. 3. If a permanent adhesive were used the strength required of the adhesive to bond layer 24 to 25 would far exceed the extremely small amount of tensile force available to tear the seal from squeezing the container. 4. If a permanent adhesive were used why would layer 24 tear open only where it meets the edge 27 of the first layer ? 6. If a permanent adhesive were used to bond layer 24 to 25 how could the resulting seal open in any desired predictable manner at all ?

4. The other cited but not relied - upon patents are also deficient in one or more of the above discussed physical features of the independent claim.

5. Since the independent claims recite features which are not present in any reference, applicant submits that these claims, and hence all of the dependent claims, clearly recite novel physical features which distinguish over any and all references under Sec. 102.

The Novel Features Of The Claims Provide New And Unexpected Results And Hence Should Be Considered Unobvious, Making the Claims Patentable Under Sec. 103.

6. Applicant submits that the above recited novel features in the independent claims, and hence in all claims, provide new and unexpected results and hence should be considered unobvious, making the claims patentable under Sec. 103.

7. My seal invention relies on a completely different concept than that disclosed in the embodiment of the Markva patent in providing a frangible closure seal for sealing the pour spout opening of a filled flexible container that would not break open when uncapped and inverted, and then when lightly squeezed

tear in a precise manner. Specifically, creating a pressure activated self opening seal by permanently bonding a first frangible layer to a second strengthening layer that uses a cut out void to create a breaking pattern configuration provides new and unexpected results such as: the frangible layer is bonded to the strengthening layer without any adhesive being present in the area of the cut out void breaking pattern by applying the adhesive to only the strengthening layer after the breaking pattern is cut out; the frangible layer can be manufactured to exacting thickness which allows the seal to consistently burst open when a precise pressure is reached; the seal is leak proof containing no perforations or openings; a permanent adhesive can be used that is impervious to the container contents; the seal can be installed using existing installation methods such as induction sealing; different breaking pattern configurations can be used to provide different flow rates specific to the container contents; the seal does not restrict the flow of the contents after breaking open.

8. **The prior art closure of Markva cannot provide these new and unexpected results:**

Markva's seal being made from two layers that must delaminate from one another creates a number of drawbacks; the partial layer that is permanently bonded to the rim covers over a substantial area of the pour spout opening restricting the flow of the contents and increasing the amount of time necessary to empty the container. The releasable layer that delaminates from the permanent layer remains bonded to the container rim and also contributes to restricting the flow of the contents. Achieving a precise and consistent burst pressure is not possible using a tacky adhesive that can degrade over time or be affected by the container contents.

9. Since the novel physical features of the applicants device provide these new and unexpected results over any reference, applicant submits that these new results indicate unobviousness and hence patentability. Accordingly, applicant respectfully requests reconsideration and allowance of the present application with

the above new claims.

Additional Reasons Militate In Favor Of Unobviousness

10. In addition to the new and unexpected results, applicant submits that additional reasons militate in favor of patentability, as follows;

11. **Unrecognized Problem:** Up to now, insofar as applicant is aware, the art contained no indication of the desirability of providing a frangible closure seal that allows the amount of pressure required to break open the seal to be set and controlled in a very precise and consistent manner without any of the seal material contaminating the dispensed contents.

12. **Crowded Art:** The present invention is in a crowded art (note the number of references on pressure activated closure seals which are cited in the introductory portion of the specification). It is well recognized that in a crowded art, that a step forward is worthy of patent protection. While the present invention is submitted to be far more than a step, I.e. a significant step, nevertheless this factor militates in applicants favor.

13. **Long Felt But Unsolved Need:** The present invention solves a long existing but unsolved need and therefore is submitted to be worthy of patent protection. Specifically, up to now, insofar as applicant is aware that none of the prior art closure seals including Markva's have achieved commercial success, nor have they been seen in the market place.

The Dependent Claims Are A-fortiori Patentable

14. The dependent claims add additional novel features and thus are submitted to be, a- fortiori, patenatble. For example, claim 35 recites that the seal can be installed by using the induction sealing process. This process is universally used throughout the packaging industry and is well known and familiar. Claim 25 recites that the configuration of the breaking pattern can be varied to suit the viscosity and hence the flow rate of the container contents when dispensed.

The Cited But Non-Applied References

15. These subsidiary references have been studied, but are submitted to be less relevant than the relied upon references.

Request For Constructive Assistance

16. The undersigned has made a diligent effort to amend the claims of this application so that they define novel structure (closure seal is made of two separate layers of sheet material, a first being a frangible layer, with a second layer being a strengthening layer that includes a cut out void that forms a breaking pattern) which is also submitted to render the claimed structure unobvious because it produces new and unexpected results (the two different layers permanently bonded together allow the seal to break

open in a defined configuration at a precise bursting pressure). If, for any reason the claims of this applicant are not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07 (j) or in making constructive suggestions pursuant to MPEP 706.03 (d) in order that this application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

Brian Francis Jackman

Applicant Pro Se